SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Create a detailed program using the 8085 microprocessor to control a stepper motor, explaining each step of the process.

17. Write a comprehensive program using the 8085 microprocessor to interface and control a seven-segment display, detailing each step.

18. Discuss the architecture of the 8051 microcontroller, highlighting its components and their interactions in executing a program.

19. Explain of arithmetic instructions in the 8051 microcontroller, focusing on their impact on program efficiency and performance.

20. Elaborate the process of implementing a real-time clock using timer interrupts in the 8051 microcontroller.

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NOVEMBER/DECEMBER 2025

23PEPH34C — MICROPROCESSOR 8085 AND MICROCONTROLLER 8051

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Identify the role of the 8259 Programmable Interrupt Controller in a microprocessor system.

2. Demonstrate the basic concept of memory interfacing in the 8085 microprocessor.

3. Extend the concept of analog to digital conversion in microprocessor systems.

4. List the steps involved in interfacing a temperature sensor with the 8085 microprocessor.

5. Write the role of input/output ports in the 8051 microcontroller.

6. What is the purpose of external data memory in the 8051 microcontroller?

7. Define the term "assembly language" and its importance in microcontroller programming.

8. What are the different types of jump instructions available in the 8051 instruction set?

9. What is the process of enabling an interrupt in the 8051 microcontroller?

10. What is the role of serial communication interrupts in the 8051 microcontroller?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain the interfacing of a Digital to Analog Converter (DAC) with the 8085 microprocessor.

Or

(b) Discuss the role of the 8253 Programmable Interval Timer in microprocessor applications.

12. (a) Explain how voltage and current measurements can be performed using the 8085 microprocessor.

Or

(b) Describe the interfacing of a hex key interface with the 8085 microprocessor.

13. (a) Sketch the pin-out configuration of the 8051 microcontroller and its importance.

Or

(b) Explain role of the 8051 microcontroller in modem embedded systems.

14. (a) Explain the process of data exchange using the 8051 microcontroller's data transfer instructions.

Or

(b) Discuss the role of logical instructions in the 8051 microcontroller, providing examples byte and bit-level operations.

15. (a) Elaborate the process of enabling and disabling interrupts in the 8051 microcontroller.

Or

(b) Explain the concept of nested interrupts and their implementation in the 8051 microcontroller.